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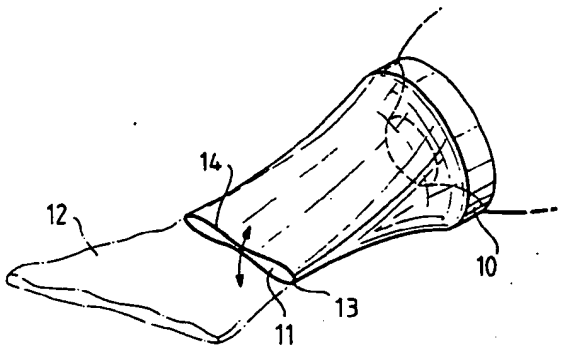
(54) Apparatus for dispensing wet wipes.

(57) The invention pertains to a seal for dispensing wet wipes from a container comprising a tube of generally tapered form having a relatively wide mouth (10) for receiving wipes and a relatively narrow orifice (11) for dispensing them, the tube being divided circumferentially into relatively rigid (13) and relatively flexible (14) axially extending zones, so that when a wet wipe (12) is dispensed the orifice is capable of expansion.

The seal according to the invention provides good dispensing action and prevents to a significant extent evaporation of the impregnated liquid.



EP 0 110 473 A1

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APPARATUS FOR DISPENSING WET WIPES

This invention relates to an apparatus for dispensing articles which are coming to be known as wet wipes.

Wet tissues have been used, particularly in the travel trade, for many years. Most common are individual tissues often packed in metallised plastics foil. More recently continuous rolls of wet tissue or non-woven material have been sold for use for major cleaning jobs, and these have become known as wet wipes. The roll of wipes is perforated so that individual sheets can be detached as they are dispensed from a container through a seal. The design of the seal is critical to the success of a wet wipe product because it must comply with three major criteria. First, it must apply little enough friction to the wipe to allow it to be pulled through the seal without breaking prematurely and yet enough to allow the individual wipe to be detached when its perforation has been pulled through. Secondly, it must be designed so that after one wipe has been detached, just enough of the second one appears downstream of the seal to allow it to be pulled through by the user. Lastly, insufficient of the second wipe should be presented to allow wicking and evaporation to occur to a significant extent, of the impregnated liquid from the immediately subsequent wipes or from the bulk of the roll.

These criteria are difficult to establish simultaneously.

The present invention provides a novel design for a seal suitable for use with wet wipes which meets the criteria set out above.

Accordingly, the present invention provides a seal for dispensing wet wipes from a container comprising a tube of generally tapered form having a relatively wide mouth for receiving wipes and a relatively narrow orifice for dispensing them, the tube being divided circumferentially into relatively rigid and relatively flexible axially extending zones, so that when a wet wipe is dispensed the orifice is capable of expansion.

The seals of this invention will generally be made of plastics and formed by a plastics moulding technique such as vacuum moulding.

The seals are particularly appropriate for use with a cassette of wet wipes intended to be housed in a larger housing for use in a washroom, for example. In that case the cassette will be sold complete with the seal. However, the seals may also be used on containers of wipes intended for the retail trade.

The invention will be further described with reference to the accompanying drawings, in which Figures 1, 2 and 3 are perspective views of a seal in accordance with the invention.

Referring first to Figure 1, a seal is shown which consists of a tube having a relatively wide circular mouth (10) which tapers abruptly to an extremely elongated, waisted elliptical orifice (11). A wet wipe (12) is shown protruding through the seal in a partly dispensed form.

The circumference of the ellipse is effectively divided into four zones, two zones (13) which because of their

small radius of curvature are relatively rigid and two zones (14), which are slightly concave and which because of their length of curvature are flexible and able to move apart from each other to permit passage of the wipe through the orifice.

Referring now to Figure 2, the seal shown has the same wide mouth (10) as that of Figure 1, but tapers to a three cornered orifice (15). In this instance the circumference of the tube at the orifice is divided into six zones, that is to say three relatively rigid zones (16) at the three corners and three relatively flexible zones (17) intermediate the corners where the tube is concave and its walls are able to move outwards to allow passage of the body of the wipe through the orifice.

Referring lastly to Figure 3, the seal again has a wide tubular mouth (10) of circular cross-section. The mouth runs into an expanding conical annulus (18) before tapering into a pear-shaped orifice (19). In this instance the top of the pear forms the relatively rigid zone (20) and the two sides of the neck (21) form the relatively flexible zones which are able to expand as shown by the arrows to accommodate the body of the wipe.

It will be appreciated that because of the existence of the relatively flexible zones in the walls of the seal, the orifice will progressively flex to accomodate variations in the bulk of the wipe due to changes in the bulk of the basic web material, the quantity of impregnated liquid, and the manner of folding of the web as it is pulled from the centre of a roll through

the wide mouth and the seal as the wipe is pulled. Equally the seal will exert a pressure on the wipe. This pressure has two functions. First, immediately after one wipe has been broken off, leaving only enough of the subsequent wipe protruding through the seal for it too be taken hold of and pulled through, the pressure prevents undue wicking and evaporation of the liquid with which the wipe is impregnated. Secondly, it provides resistance to the passage of the wipe and consequently allows a first wipe to be detached from a roll after a second one has just emerged through the seal.

Reliable dispensing action of the above described system is, of course, dependent on the specific ratio between the force necessary to pull the wipes through the seal out of the dispenser and the perforation strength of the wipes, i.e. the strength of the paper at the line of perforation between two successive wipe tissues.

The perforation strength is directedly related to the overall strength of the wipe material and the specific perforation pattern which is used to separate successive wipe tissues.

The pull out force is equal to the total resistance arising from the friction caused by the dispenser seal itself and by the wipes unrolling and reaching the seal. Although in general it is quite possible to use a dispenser seal according to the present invention which in combination with the other frictional parameters of the system results in a pull out force which is greater than the perforation strength of the wipes being

employed, it is preferred that the ratio between the pull out force and the perforation strength falls within the range of from about 1:1 to 1:2 thereby ensuring reliable dispensing action throughout the entire wipe load of the container.

The seal according to the present invention can be particularly advantageous in preventing vapor loss from immediately subsequent wipes or from the bulk of the wipe load in the cassette, when used in combination with wet wipes provided with a hydrophobic barrier pattern as described in the EP specification 0 068 722.

Although the invention has been focused primarily on the dispensing and vapor loss problem with wet wipes, it will be appreciated that the present seal design can also be suitably used for the dispensing of wipes in dry form.

CLAIMS

1. A seal for dispensing wet wipes from a container characterized in that it comprises a tube of generally tapered form having a relatively wide mouth for receiving wipes and a relatively narrow orifice for dispensing them, the tube being divided circumferentially into relatively rigid and relatively flexible axially extending zones, so that when a wet wipe is dispensed the orifice is capable of expansion.

2. A seal according to claim 1 characterized in that the orifice has an elongated waisted elliptical form 11.

3. A seal according to claim 1 characterized in that the orifice has a three cornered form 15.

4. A seal according to claim 1 characterized in that the orifice has a pear-shaped form 19.

5. A cassette for housing wet wipes characterized in that it comprises a seal according to one of the preceding claims.

6. A cassette according to claim 5 characterized in that the ratio between the pulling force necessary to dispense the wipes and the perforation strength of the wipes falls within the range of from 1:1 to 1:2.

Fig.1.

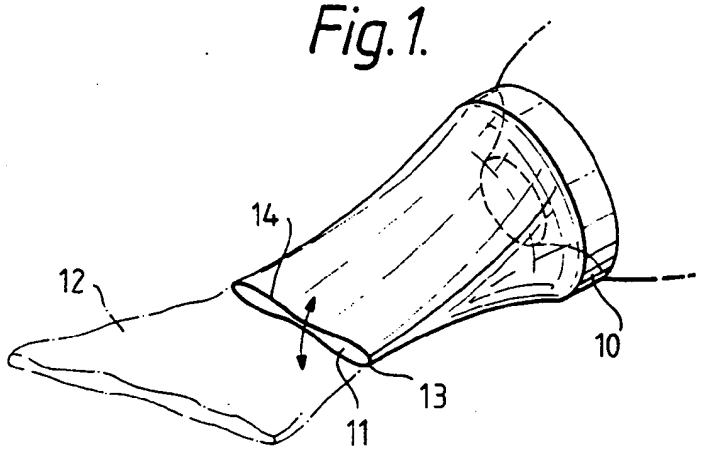


Fig.2.

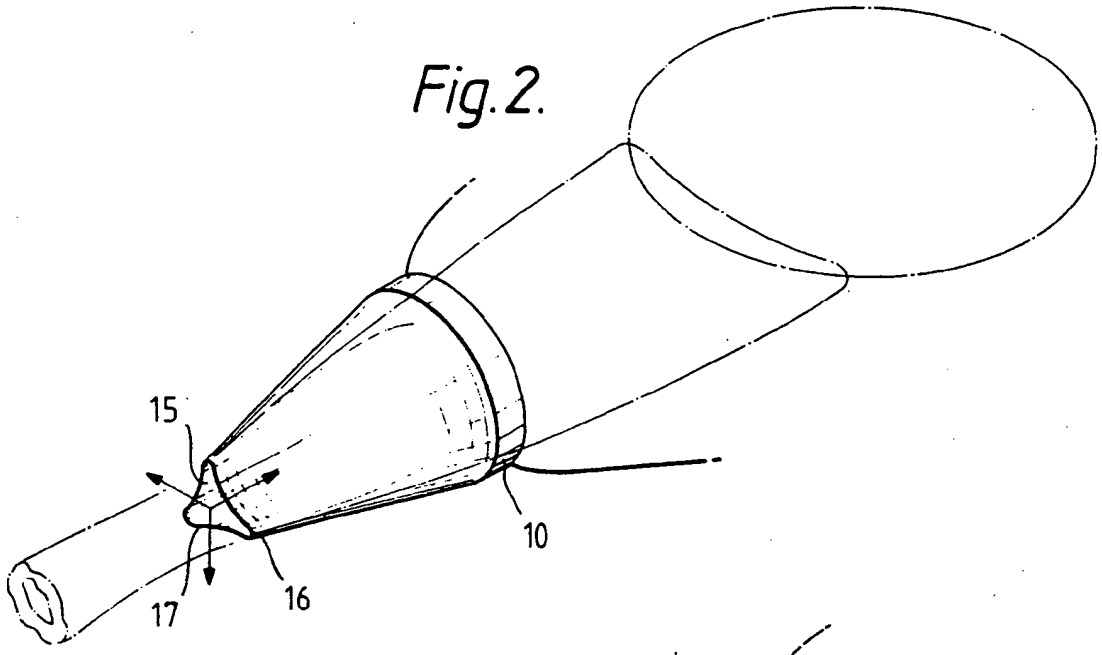
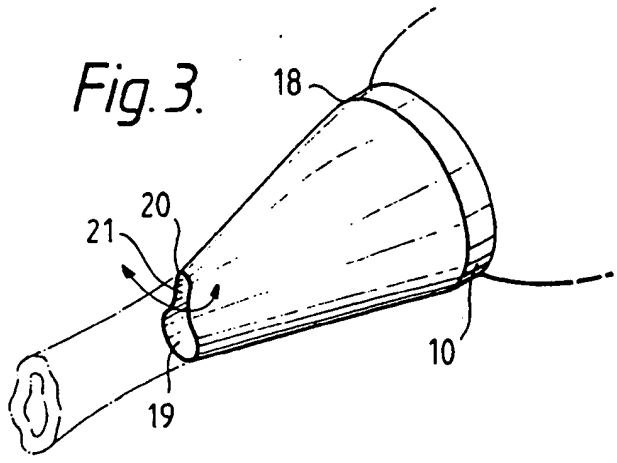


Fig.3.



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Application number

EP 83 20 1656

European Patent Office

EUROPEAN SEARCH REPORT

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. ³)
A	FR-A- 775 195 (DURON) * Page 1, lines 46-60; page 2, lines 1-35; figures 1,4 *	1	A 47 K 10/38
A	US-A-3 982 659 (ROSS) * Column 7, lines 48-68; column 8, lines 1-32; figures 3-5 *	2	
A	FR-A-2 218 866 (COLGATE) * Page 6, lines 6-28; figure 8 *	1	
A	FR-A-2 228 687 (COLGATE) * Page 3, lines 1-17; figures 1-3 *	3	
A	FR-A-2 329 562 (AMES) * Page 5, lines 36-38; page 7, lines 1-23; figure 6 *	4	TECHNICAL FIELDS SEARCHED (Int. Cl. ³)
A	FR-A-2 434 100 (FINKELSTEIN)		A 47 K B 65 D
A	CA-A-1 096 821 (MATHIESON)		

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	02-03-1984	SCHOLS W.L.H.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

Fig.1.

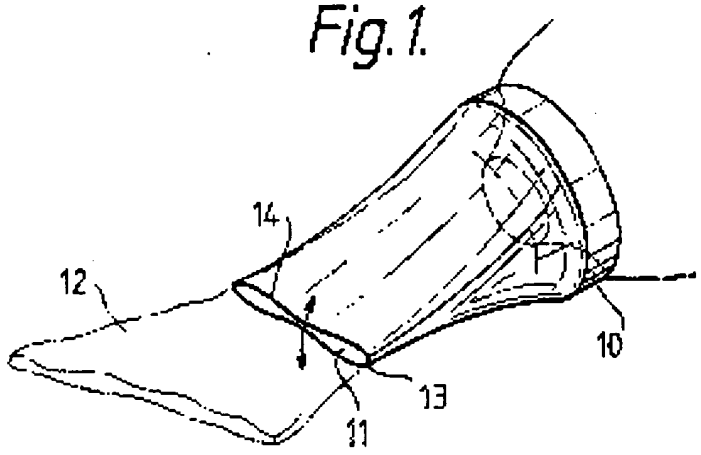

Fig.2.

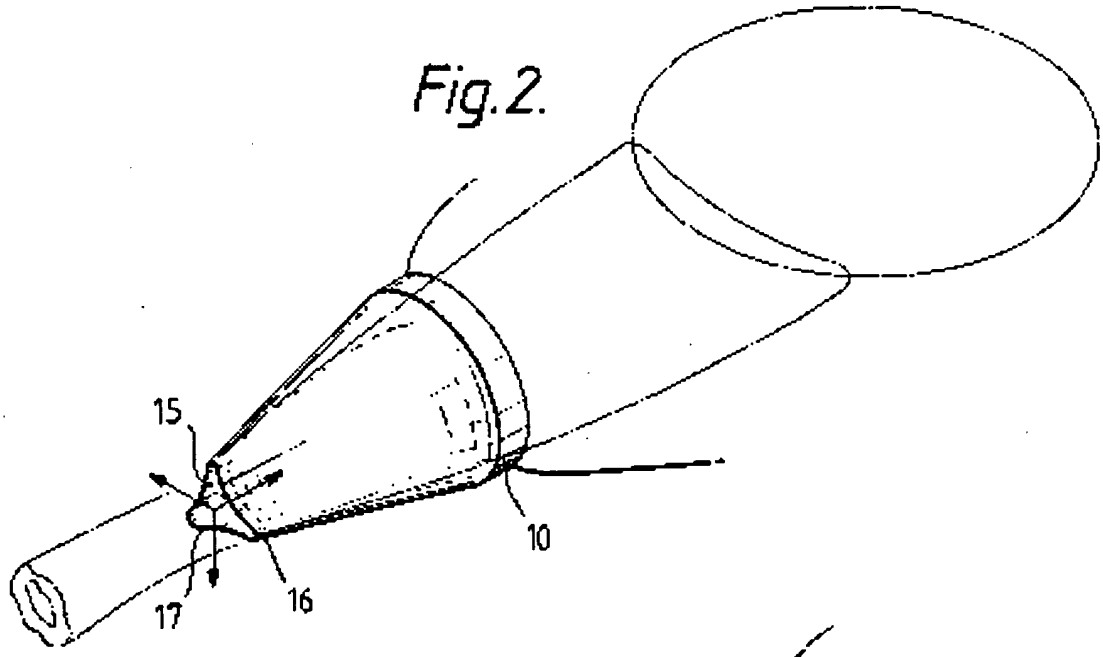

Fig.3.